Electrical Hazard for Electricians

What is the hazard? Employees working with electrical infrastructure (panels, wiring, etc.) can be exposed to high levels of electrical current and also high-temperature explosions known as an "arc flash," during which employees can be killed or seriously injured. Employees working on any electrified equipment are also at risk of exposure to electrical current, which could result in electrical shock, electrical burns, or electrocution. In addition, employees conducting electrical work while on ladders, at height, or in precarious positions are at risk of a fall triggered by receiving an electrical shock.

Note: This tool should be prepared in conjunction with the lockout/tagout hazardous assessment tool relative to repair of electrified equipment.

Level of Employee Exposure

Do you have employees exposed to this hazard?
Examples: Employees installing, updating, or repairing electrical infrastructure such as wiring, panel boxes, circuits, power lines, etc.
Employees installing or repairing any electrified equipment.

YES / NO

If you answered NO, you never have any employees exposed to this hazard, you have completed this hazard assessment tool.

If you answered YES, please complete the table below and continue on with the remainder of this hazard assessment tool.

List the tasks that expose your employees to this hazard.
Estimate the number of employees conducting each task, and the estimated frequency that each task is conducted (first per employee and then for the agency overall (e.g., how many times per day/week/month or year)). For tasks such as repairs, that are not done on a routine schedule, but occur when things malfunction, make your best estimate of how often this task is conducted based on past experience.

1. Describe task that exposes employees to this hazard	2. How often, on average, would an individual employee conduct this task? (list either times per week, per month, or per year, whichever best applies).	3. How many employees do you have who conduct this task?	4. Multiply the answer for #2 by the answer for #3 to get a total exposure for your employees.
Example: Repair panel box	*0.5 times per year (this occurs once every two years)*	*6 employees*	*3 times per year*

		Total of all #4 rows:	

Use of Standard / Regulation / Guideline

What regulation or standard do you follow to protect employees from this hazard, if any?

Upper Management Support / Policy / Full Hierarchy Accountability

Is there a written policy/program on this hazard?

Who is in charge of ensuring that employees are kept safe from this hazard? A) At the senior management level. B) During day-to-day operations.

How does the agency ensure that the regulation or policy relative to this hazard is followed by all employees?

Training / Certification

What training have employees received relative to this hazard?

What qualifications/licensing for an employee, if any, are required before conducting electrical work?

Are there tasks for which these qualifications are not considered necessary?

CONTROLS

Controls - Administrative

What is your policy regarding working “hot” or live? Under what circumstances is power shut off to an area in order to conduct electrical work?

Are there any circumstances under which a permit is used for electrical work?

Controls – Protected Tools and Personal Protective Equipment – Have and Use

How is it determined when the personal protective equipment or protected tools discussed in the next three questions should be used?
By regulation or standard?

By your written policy?
By specific criteria, such as at a certain voltage?
Always use for certain tasks?
Case-by-case or field determination?
There is no method for determining when personal protective equipment and/or protected tools used.

When personal protective equipment is supposed to be used, how frequently is it actually used?
Always mostly half-the-time sometimes never

When protected (electrically-resistant) tools are supposed to be used, how frequently is it actually used?
Always mostly half-the-time sometimes never

Do employees have protected (electrically-resistant) tools?
Which tools?
Under what circumstances are employees are instructed to use these protected tools?

Do employees have electrically-resistant personal protective equipment, such as gloves?
Is it labeled with or does it need to meet any “approval” designation?
What is the calorie rating?
Are there specific circumstances under which employees are instructed to use certain personal protective equipment?
How is it determined what rating is needed for different work tasks, including voltage level being worked on?

Do employees have flame retardant clothing?
What items of clothing?
Is it labeled with or does it need to meet any “approval” designation?
What is the calorie rating?
Are there specific circumstances under which employees are instructed to wear this clothing?
How is it determined what rating is needed for different work tasks, including voltage level being worked on?

For electrical work, do you have the all the correct types of personal protective equipment and safety tools you need to cover all the types of work sites or work tasks you have, for example different voltage situations?

Do you have enough of this personal protective equipment and safety tools for all of the employees who need to use it at the same time?

Emergency Response Planning

Is there a plan in place to respond to an accident or emergency with this hazard?
Are you relying on outside responders or do you have an internal response team?
If you are relying on outside responders, have they been made aware of the electrical hazards at your facility?
Do you know if they are trained and equipped to respond to this type of emergency?
If you plan to use internal responders, what type of training did internal responders receive?
Has the emergency response plan for this hazard been tested with a drill?

Concerns / Near Misses / Accidents

Is there a designated person to whom employees go with complaints or concerns about this hazard?

Is there a formal reporting procedure for near misses (narrowly avoided accidents)?

Is there a formal reporting procedure for accidents/injuries/illnesses with this hazard?

Have you had any accidents or near misses with this hazard? Please give an estimated date and brief description.

Prevention

In the “Level of Employee Exposure” section, you identified tasks that expose employees to the hazard assessed in this tool.
Can you identify any ways that would eliminate or reduce employee exposure to this hazard?
For example, can you eliminate the hazardous task?
Modify the hazardous task?

What would be needed to implement these preventive measures?

Other / Comments / Anything You Want to Add:

Are there any other controls in place to protect employees from this hazard?

Any other general comments:

IF YOU HAVE QUESTIONS OR NEED ASSISTANCE WITH THIS DOCUMENT, CONTACT: Hilary Hackbart, Massachusetts Division of Occupational Safety, 617-969-7177, ext. 333, or hilary.hackbart@state.ma.us